

ER-2 Flight Summary

Mission: Mission 11

Flight Scientists: M. King, P. Newman

Sortie: 02-956

Date: Monday, 29 July 2002

Pilot: J. Barrilleaux

Takeoff: 1100 EDT (1500 UTC)

Landing: 1750 EDT (2150 UTC)

Duration: 6:50

Objectives:

The aircraft took off at 1100 EDT, climbed to altitude, and proceeded to waypoint A (24°30'N, 81°27'W), where it was joined by the WB-57F at around 1543 UTC. Both aircraft then proceeded towards waypoint B (26°02'N, 77°15'W), a distance of 455 km, crossing the mid-point of this flight line at the time of the Terra overpass that occurred at 1603 UTC. After passing waypoint B, the ER-2 proceeded WSW towards waypoint C (25°32'N, 79°58'W) where the ER-2 and WB-57F flew several flight tracks to waypoint D (25°58'N, 82°01'W). This flight line overflew the eastern and western ground sites on several different passes.

The meteorology on Monday (July 29) was strongly determined by an upper-tropospheric low whose center was slowly tracking westward from NE of the Dominican Republic on Saturday, to a position over Key West early Monday, to a position immediately NE of Key West by Monday afternoon. Winds over the Everglades and Miami region slowly shifted from ENE to ESE by the time of the flight. The tropopause was approximately located at about 170 hPa with a temperature of about -62°C. Under the influence of this low, mid and upper tropospheric clouds were seen to move northward. After completion of the Terra underpass, the ER-2 began a flight leg across the two ground sites. Mid-level clouds were moving NW across the Tamiami trail at this time (~ 1700 UTC), but a large convective system began to develop NNW of the western ground site near Sanibel. The ER-2 was then offset to the NW to continue to follow this same system as it evolved. The winds continued to carry the outflow from this system WNW over the course of the afternoon. The ER-2 was again offset NW to continue to measure this same system.

Satellite or fixed coordination:

Satellites (relative to eastern site):

Terra – 1603 UTC, VZA = 12.18°

Western ground site:

PARSL, Everglades National Park, Gulf Coast Visitor's Center
25 50.7 N, 81 23.15 W

Overpasses of Western Site

16:58:10 UT, Min dist.= 0.67 km

17:18:42 UT, Min dist.= 0.39 km

17:45:04 UT, Min dist.= 0.40 km

Eastern ground site:

Kendall-Tamiami Airport

25 39.3 N, 80 25.9 W

Overpasses of Eastern Site

16:50:56 UT, Min dist.= 1.14 km

17:27:26 UT, Min dist.= 0.78 km

17:37:46 UT, Min dist.= 0.64 km

Aircraft coordination:

Nominal take off times (local): P-3B (1200), WB-57 (1100), Twin Otter (1430), Citation (1300).

WB-57: In situ sampling along the flight line underneath the ER-2 during the Terra overpass between 1545 and 1645 UTC, primarily at 13 km. The WB-57F then climbed as it crossed the eastern ground site en route to the western ground site between 1630 and 1700 UTC from 13 to 17 km. The WB-57F underflew the ER-2 repeatedly between the eastern and western ground sites, each flight line being at a somewhat lower altitude, doing legs at 19, 17, 15, and 13 km. Towards the end of the mission, the WB-57F worked a convective cloud complex and anvil structure west of Ft. Myers between 12 and 14 km.

Proteus: high altitude sampling of in-flow air along the E-W flight line underneath the ER-2 between 1650 and 2045 UTC.

Citation: In situ sampling orthogonal to the ER-2 flight line near Ft. Myers between 1745 and 2000 UTC, primarily between 10 and 12 km.

Twin Otter: low altitude sampling of in-flow air along the E-W flight line underneath the ER-2 at 1947 UTC.

Summary/highlights:

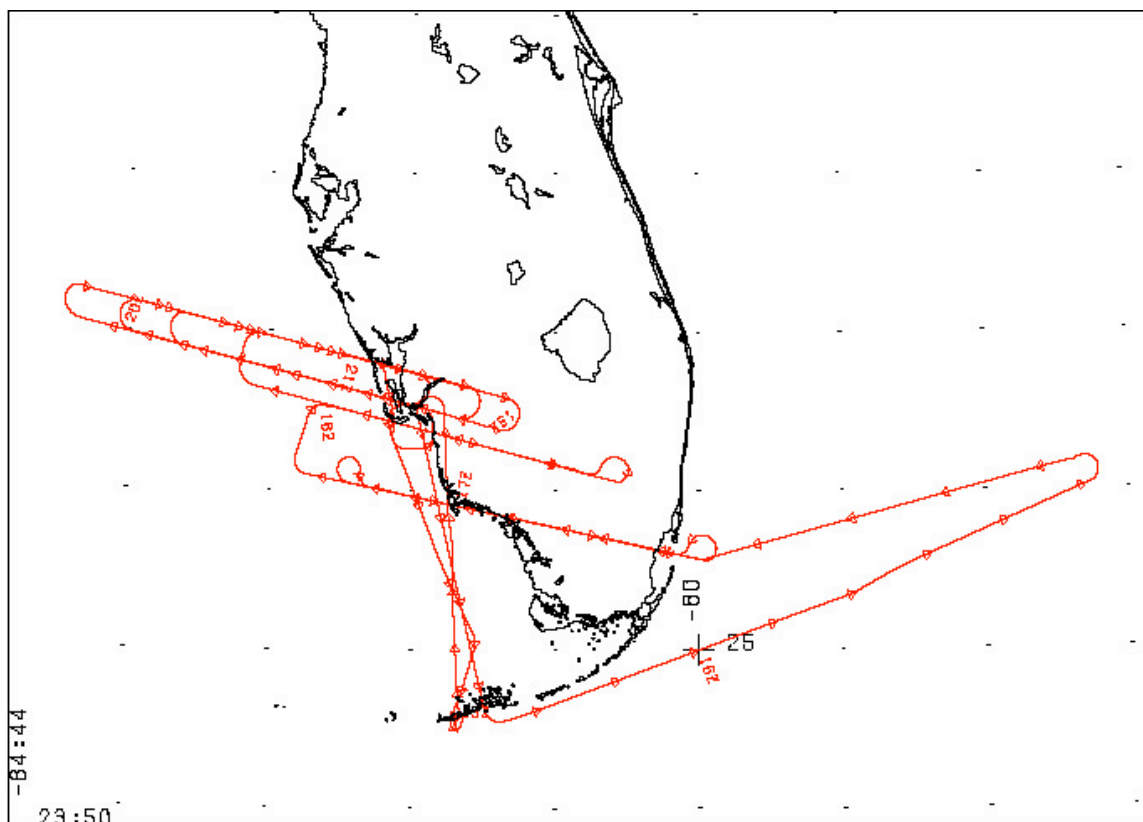
- Dropsondes: 8 sondes dropped

No data were recorded due to problems with the computer.

ER-2 science instrument payload and status:

Instrument	Status	Notes
CoSSIR Conical Scanning Sub-mm wave Imaging Radiometer	G	
CPL Cloud Physics Lidar	G	
CRS Cloud Radar System	G	
EDOP ER-2 Doppler Radar	G	
JLH JPL Laser Hygrometer	G	
MAS MODIS Airborne Simulator	G	
MMS Meteor. Meas. System	F	10 minutes of data and then failure
MTP Microwave Temperature Profiler	G	
RAMS Radiation Meas. System	G	
SSFR Solar Spectral Flux Radiometer	G	
Dropsonde	F	All sondes failed to record data

**G = good; P = partial data collected; F = failure, no data; NA = status not
available at time of writing**



FLIGHT 02-968 29 JULY 2002 A/C 008 CRYSTAL/FACE
 LAMBERT CONFORMAL PROJECTION: GP1 = 24.0 GP2 = 26.8 CM = -80.8 ROTATED BY 0.0
 15:00:00 TO 21:50:00 UT SCALE 1:9.92E+08 TIME TICK EVERY 5.00 MINUTES